

MINUTES
ENWRA Spring Technical Meeting
Thursday, May 3, 2018 1:00-3:00 pm
Lower Platte North NRD
Wahoo, Nebraska

Attendees (15):

Amanda Flynn (US Geological Survey [USGS]), Chris Hobza (USGS), Myles Lammers (Lewis and Clark Natural Resources District [LCNRD]), Jesse Bradley (Nebraska Department of Natural Resources [NeDNR]), Jim Cannia (Aqua-Geo Frameworks, LLC [AGF]), Daryl Andersen (Lower Platte North NRD [LPNNRD]), Russell Oaklund (LPNNRD), Dan Schulz (Lower Platte South NRD [LPSNRD]), Sue Lackey (University of Nebraska-Lincoln, School of Natural Resources, Conservation and Survey Division [UNL CSD] – call in), Brian Bruckner (Lower Elkhorn NRD [LENRD]), Paul Woodward (Papio-Missouri River NRD [P-MRNRD]), Jesse Korus (UNL CSD), Dick Ehrman (LPSNRD), Chuck Wingert (Nemaha NRD [NNRD]), Katie Cameron (Eastern Nebraska Water Resources Assessment [ENWRA] Coordinator/UNL CSD)

Financials:

The ENWRA 2018 Spring Meeting Agenda handout included a Fiscal Year (FY) 2018 table with ENWRA account spending. The FY18 table included both the original budgeted amounts and best projected FY end actual spending columns and reflected ~\$310,000 in the account at the end FY 2018. The handout also included a summary of the FY 2019 budget for ENWRA that will go through the LPSNRD budgeting process on ENWRA's behalf starting May 24, 2018. The FY 2019 budget includes similar planned spending items as FY 2018. The equipment maintenance spending was increased to match the approximate amount spent in FY 2018. There are 3 test hole credits totaling \$27,450 (LPNNRD, NNRD, LPSNRD) budgeted. A \$50,000 placeholder for possible new project spending/grant applications was also included.

Recent activity since our annual meeting January 2018:

Water Sustainability Fund (WSF) Natural Resources Commission (NRC) Projects:

- Award #4164 the Nebraska GeoCloud (NGC): Jesse Korus provided an update on the NGC. Jesse went through a presentation that was provided at a Water for Food research forum held in April 2018 by the student working on the NGC project. Jesse described work with interpreting hydrographs and barometric response functions for understanding an area's response to pumping, degree of confinement and the aquifer types present. The presentation outlined a research question for the student mentioning the construction of hydrogeologic models with AEM data using both a statistical modeling approach and an expert's interpretation modeling approach. A prediction would then be made for each well site using each approach separately and then the predictions compared to the area's hydrograph understandings. Jesse also expanded on the upcoming NGC **workshop Aug. 7-8, 2018** in Gothenburg (Please refer to the email from Jesse Korus March 19th 2018 & sign up).
- 2016 AEM awards: The last of the ENWRA NRD Project Close-out reports was sent to WSF May 2, 2018 (LPSNRD #4132)
- Award #4125: The last reimbursement for the Secondary Bedrock Aquifer Age dating project has been received – the JFA was extended to Sept 30, 2019 for final report.

- Award #5189: NRDs should each have the 2018 AEM 30% down reimbursements back, planning conducted Jan to March, May 9th bids in – vendor selection May 14th to 25th

ENWRA Presentations: board updates are done (except LCNRD in May/June), March 7th Managers meeting, several presentations on the 2016 AEM data reports (LPNNRD and LPSNRD).

Test Holes/Monitoring Well Installations:

- 3 locations in LPNNRD, 2 locations in LENRD, and 2 locations in LCNRD planned for this May and June with monitoring wells (LCNRD and LENRD each getting \$9,150 credits in FY 2018)
- 3 NRDs planned for FY 2019: LPSNRD & NNRD (fall 2018 to spring 2019 work) and LPNNRD (spring 2018 work). P-MRNRD \$9,150 is planned for FY 2020.
- The ENWRA group decided to modify the purpose of the \$9,150 test hole credit rotation so it covers any hydrogeological study efforts covered under the LRP that the NRDs desire to use it for (example: nested monitoring wells etc.) - starting in FY 2020: the \$9,150 will no longer be limited to test holes along flight lines.

Upcoming Pilot Study Sampling

- Ashland Pilot Study Sampling planned by USGS for this May 2018, Firth (LPSNRD) & Oakland (LENRD) planned in spring to summer 2018 – packets going out to crews in early May. Transducer discussions: how long batteries last, mainly using in-situ, expanding telemetry. Keep in mind could try out new probe performance over time at pilot sites through ENWRA.

Recharge Next Step Roundtable Discussions

Where are we at with our current track on recharge assessment with USGS in relation to ENWRA Long Range Plan (LRP) Objective #3 - Estimate recharge areas and rates? (Agenda handout). Partners' discussions included the following:

- NeDNR indicated from the model side of things, there is an area of study lacking: from 10 feet below ground down to the water table - models call this area out as immediate recharge and don't account for the recharge delay - NeDNR validates with pumping data. In eastern NE this delay is big factor that needs creative assessment, also look at seasonal changes. Also transmissivity and specific yield CSD datasets (updated versions) and vertical components of the hydraulic conductivity (K_v) from drawdown curves etc. are key to getting at the regional scale.
- NeDNR has same goal as NRDs: use the AEM data. NeDNR is in contact with CSD on the Platte Colfax area NGC work with LPNNRD support and is interested in other potential pilot areas too (example: open to student work, LENRD results presented in Jan. etc). They have some (not lots) potential funds that could help.
- LPNNRD and LPSNRD are doing targeted vadose sampling with Dan Snow at UNL with chemical profiles and age tracers – building a statewide vadose sample result database.
- Make polygons of similar soils using from soils map of top 5 feet (LRP Fig 5) and compare with top layer of AEM resistivity and use those as focus areas for targeted vadose sampling?
- Partners will keep vadose zone sampling parameters in mind when planning test holes

Next step: Roundtable flushed out important questions, perspectives, and a general desire for more focus on the vadose zone (collect point data over time, tap into UNL experts, how to think about upscaling to regional, working with partners). Coordinator will work with Amanda Flynn

of USGS and Dustin Wilcox to get an ENWRA recharge/vadose workshop scheduled for the NRD Legislative Conference in January or Water Programs in March 2019 pulling in UNL experts in order to follow-up with the technical meeting roundtable discussions and maybe form up a next step proposal/scope discussion for 2019 ENWRA meetings. We will have GeoCloud workshop under our belts in August and the first of the 2018 AEM final reports (top layer resolutions/regional dataset coverages) by this time frame also.

2018 Airborne Electromagnetic (AEM) Survey Flights

- Detailed planning around infrastructure is already in progress by Jim Cannia of AGF and his team - this will continue until the final lines are handed to the selected vendor.
- The AEM vendor bids are due at the end of the day on May 8th and the selection process will start May 9th. Contract negotiations and vendor deposits are anticipated between May 14th and May 25th – NRDs will be provided the final km# allotment once the vendor is secured.
- The final flight plans for each NRD with the allotted line km will need to be ready for hand over to the vendor by May 25th – NRDs please plan to give final blessing around this time.
- The selected vendor will be clear to start the flights as soon as the contract is in place (but they have up to 45 days to get started), there is also a 45 day acquisition window (from when they start, they must be done with all the flights within 45 calendar days) AND a 45 day payment window (AGF must pay the vendor within 45 days of the last day of flights).
- **NRDs will get an invoice from ENWRA for 50% of the total project costs on July 1st 2018** (the week before, dated July 1) and will require checks in hand before the end of July in order to pay AGF so they can in turn pay the vendor within the 45 day window.

Income From	Project Commitment	Amount ENWRA Will Bill NRD	Estimated Bill Date	ENWRA Invoice Number	Invoice Period	Amount to be Reimbursed by DNR (60%)	NRD out-of-pocket (40% to budget for)	Estimated Date NRDs Will Receive Reimbursement back from ENWRA	
LC NRD	\$150,000.00	\$150,000.00	1/31/2018	5000	FY18 (30%)	\$90,000.00	\$60,000.00	4/5/2018	
LC NRD (sidecontract)	\$45,000.00	-	5/1/2018	-		-	\$45,000.00	-	
LE NRD	\$195,000.00	\$195,000.00	1/31/2018	5001		\$117,000.00	\$78,000.00	4/5/2018	
LE NRD (sidecontract)	\$66,000.00	-	-	-		-	\$66,000.00	-	
LPN NRD	\$225,000.00	\$225,000.00	1/31/2018	5002		\$135,000.00	\$90,000.00	4/5/2018	
LPS NRD	\$255,000.00	\$255,000.00	1/31/2018	5003		\$153,000.00	\$102,000.00	4/5/2018	
N NRD	\$90,000.00	\$90,000.00	1/31/2018	5004		\$54,000.00	\$36,000.00	4/5/2018	
PMR NRD	\$69,000.00	\$69,000.00	1/31/2018	5005		\$41,400.00	\$27,600.00	4/5/2018	
	\$1,095,000.00								
LE NRD (50% WSF)	\$325,000.00	\$325,000.00	7/1/2018	5006		FY19	\$195,000.00	\$130,000.00	8/31/2018 (after flights)
LE NRD (side cont. 50%)	\$110,000.00	-	7/1/2018	-	-		\$110,000.00	-	
LE NRD (WSF last 20%)	\$130,000.00	\$130,000.00	12/31/2018	5012	\$78,000.00		\$52,000.00	12/31/18 (after report chapter)	
LE NRD (side last 20%)	\$44,000.00	-	12/31/2018	-	-		\$44,000.00	-	
LC NRD (50% WSF)	\$250,000.00	\$250,000.00	7/1/2018	5007	\$150,000.00		\$100,000.00	8/31/2018 (after flights)	
LC NRD (side cont 50%)	\$75,000.00	-	7/1/2018	-	-		\$75,000.00	-	
LC NRD (side last 20%)	\$30,000.00	-	2/14/2019	-	-		\$30,000.00	-	
LPN NRD (WSF 50%)	\$375,000.00	\$375,000.00	7/1/2018	5008	\$225,000.00		\$150,000.00	8/31/2018 (after flights)	
LPS NRD (WSF 50%)	\$425,000.00	\$425,000.00	7/1/2018	5009	\$255,000.00		\$170,000.00	8/31/2018 (after flights)	
N NRD (WSF 50%)	\$150,000.00	\$150,000.00	7/1/2018	5010	\$90,000.00		\$60,000.00	8/31/2018 (after flights)	
N NRD (last 20%)	\$60,000.00	\$60,000.00	3/21/2019	5010	\$36,000.00	\$24,000.00	6/30/19 (after report chapter)		
PMR NRD (WSF 50%)	\$115,000.00	\$115,000.00	7/1/2018	5011	\$69,000.00	\$46,000.00	8/31/2018 (after flights)		
PMR NRD (last 20%)	\$46,000.00	\$46,000.00	5/3/2019	5012	\$27,600.00	\$18,400.00	6/30/19 (after report chapter)		
	\$2,135,000.00								
LPN NRD (WSF last 20%)	\$150,000.00	\$150,000.00	7/2/2019	5015	FY20	\$90,000.00	\$60,000.00	9/2/19 (after report chapter)	
LC NRD (WSF last 20%)	\$100,000.00	\$100,000.00	8/26/2019	5013		\$60,000.00	\$40,000.00	10/30/19 (after report chapter)	
LPS NRD (WSF last 20%)	\$170,000.00	\$170,000.00	11/1/2019	5016		\$102,000.00	\$68,000.00	12/31/19 (after report chapter)	
	\$420,000.00								
TOTALS:	\$3,650,000.00	\$3,280,000.00				\$1,968,000.00	\$1,682,000.00		

Note: Report due dates in red, the last invoices will be due when report chapters are delivered to each NRD.

- Coordinator will email Kent Zimmerman to invite/inform NRC about the flights – May 17th is the next NRC meeting in Kearney at 1pm.

Adjourn